

Chip Writer User's Guide

(Second Edition)

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Introduction

The main function of the Chip Writer is to program the Dice versions of Holtek's OTP microcontrollers. By a simple connection to the relevant signal pins on the J1, J2 or J4 pins on the chip writer (see the "accompanying hardware" section), the dice can either be directly placed upon the writer or by using an extension cable connected to the writer.

Features

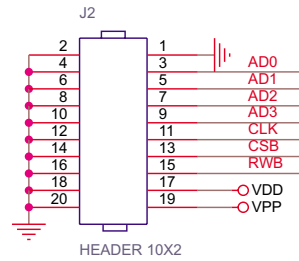
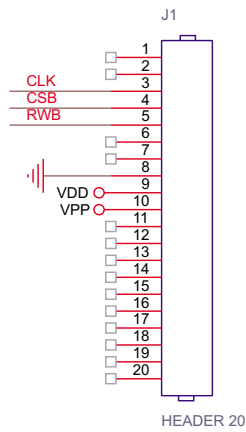
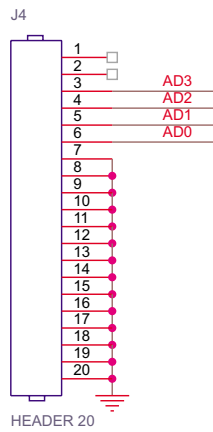
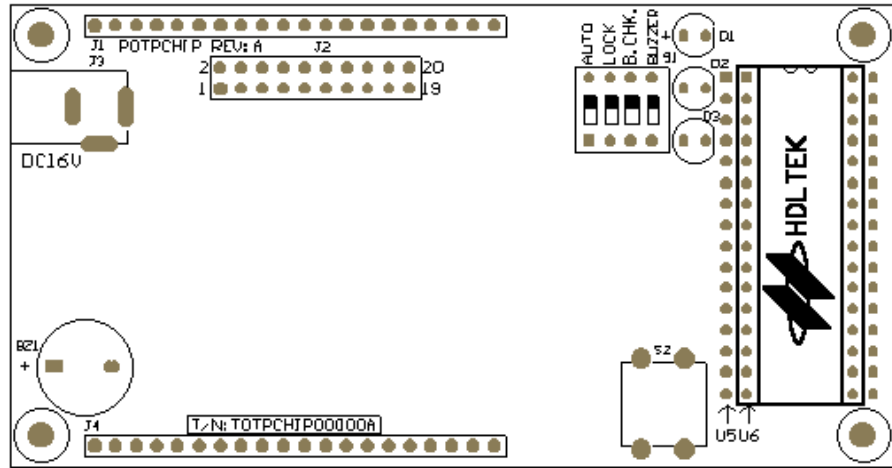
- The writer operates in a full stand alone mode to program OTP devices and does not need to be connected to a PC.
- Programming interface signal pins allowing the user to design their own programming equipment. The incorporation of the Chip Writer with the user's programming equipment will therefore allow for the convenient programming of OTP devices for the user's application.

Hardware Requirements

- Power supply adapter output voltage: 16V
- Pre-programmed EPROM or Flash ROM. Before programming the OTP device the data to be programmed must be placed into an EPROM or Flash ROM which must then be placed in connector U5 or U6. After this the data in the EPROM or Flash ROM can be programmed into the OTP device. Suitable EPROM/Flash ROM devices include 27C010, 27C020, 27C040, 29C010, 29C020 and 29C040.

Accompanying Hardware

J3	DC JACK, DC 16V socket
U5	Flash ROM socket
U6	EPROM socket
D3	Green LED
D2	Yellow LED
D1	Red LED
S1	DIP Switches
S2	Programming key for manual operation
BZ1	BUZZER
J1, J4	Programming signal connector
J2	Programming signal connector



Programming Signal/OTP Chip Pin-out Cross-reference Table

OTP Chip	Connector J1, J2 or J4
PA0	AD0
PA1	AD1
PA2	AD2
PA3	AD3
PA4	CLK
PA5	CSB
PA6	RWB
OSC1	Ground (direct connection)
VDD	VDD
RESB	VPP
VSS	Ground (direct connection)

DIP Switch Functional Description

DIP1	AUTO	If Dip switch #1 is switched on, the programmer will be placed in auto programming mode. When an OTP chip is placed in the Textool socket the programming process will begin automatically without the need to press the programming key.
DIP2	LOCK	If Dip switch #2 is switched on, after programming the data in the OTP, it will be locked.
DIP3	BLANK CHECK	If Dip switch #3 is switched on, the programmer will run a blank check on the OTP to check if its contents are empty before programming. If Dip switch #3 is switched off the programmer will immediately start programming. The programming operation is [Blank Check] → Program → Verify
DIP4	BUZZER	If Dip switch #4 is switched on, after programming, whether successful or not, an audible reminder signal will be generated.

OTP Chip Programming Steps

Programming Steps — Manual Mode

1. Place the EPROM/Flash ROM in the respective socket
Regarding the data source contained within the EPROM/Flash ROM, please refer to the "Creating the EPROM/Flash ROM data source file" section.
2. Turn on the power
Connect the 16V adapter, the system will now be in standby mode.
3. Place an OTP chip that is compatible with the data in the EPROM/Flash ROM, into the Textool socket.
4. Press the programming key to begin the programming cycle.
5. Check the indicator LEDs to verify that the programming operation was successful.
6. Remove the programmed OTP chip, the programmer will now return to its standby mode.
7. Repeat steps 3-6.

Programming Steps — Automatic Mode

1. Place the EPROM/Flash ROM in the respective socket
Regarding the data source contained within the EPROM/Flash ROM, please refer to the "Creating the EPROM/Flash ROM data source file" section.
2. Turn on the power
Connect the 16V adapter, the system will now be in standby mode.
3. Place an OTP chip that is compatible with the data in the EPROM/Flash ROM, into the Textool socket, when this is done the programmer will program the OTP automatically.
4. Check the indicator LEDs to verify that the programming operation was successful.
5. Remove the programmed OTP chip, the writer will now return to its standby mode.
6. Repeat steps 3-5.

Creating the EPROM/Flash ROM Data Source file

- Creating the OTP file
The EPROM/Flash ROM contents is an OTP file. This OTP file is created by the Holtek HT-IDE2000 development system, for more detailed information refer to the HT-IDE2000 USER'S GUIDE.
- Using an EPROM/Flash ROM programmer to program the OTP file into the EPROM or Flash ROM
- Place the EPROM into U6 or the Flash ROM into U5
- After turning the power on the system should be in a standby state. If the red LED is flashing then the following conditions may have occurred:
 - The data in the EPROM/Flash ROM is not in the correct OTP format and the data must be created again.
 - Faulty EPROM/Flash ROM
 - The EPROM/Flash ROM has been placed incorrectly

LED Indicator Description

Red LED	Flash-once then stop	Present OTP device is locked
	Flash twice then stop	EPROM/Flash ROM data incompatible with present OTP device
	Flash 3-times then stop	Present OTP already contains data
	Flash 4-times then stop	Programming failed
	Flash 5-times then stop	Programming complete but error detected during verification process
	Rapid flashing	Other error condition e.g. OTP wrongly placed
Green LED	Rapid flashing	Programming successful
Yellow LED	Slow flashing	System normal and awaiting programming instruction
	Rapid flashing	Programming operation in progress